FIG. 1

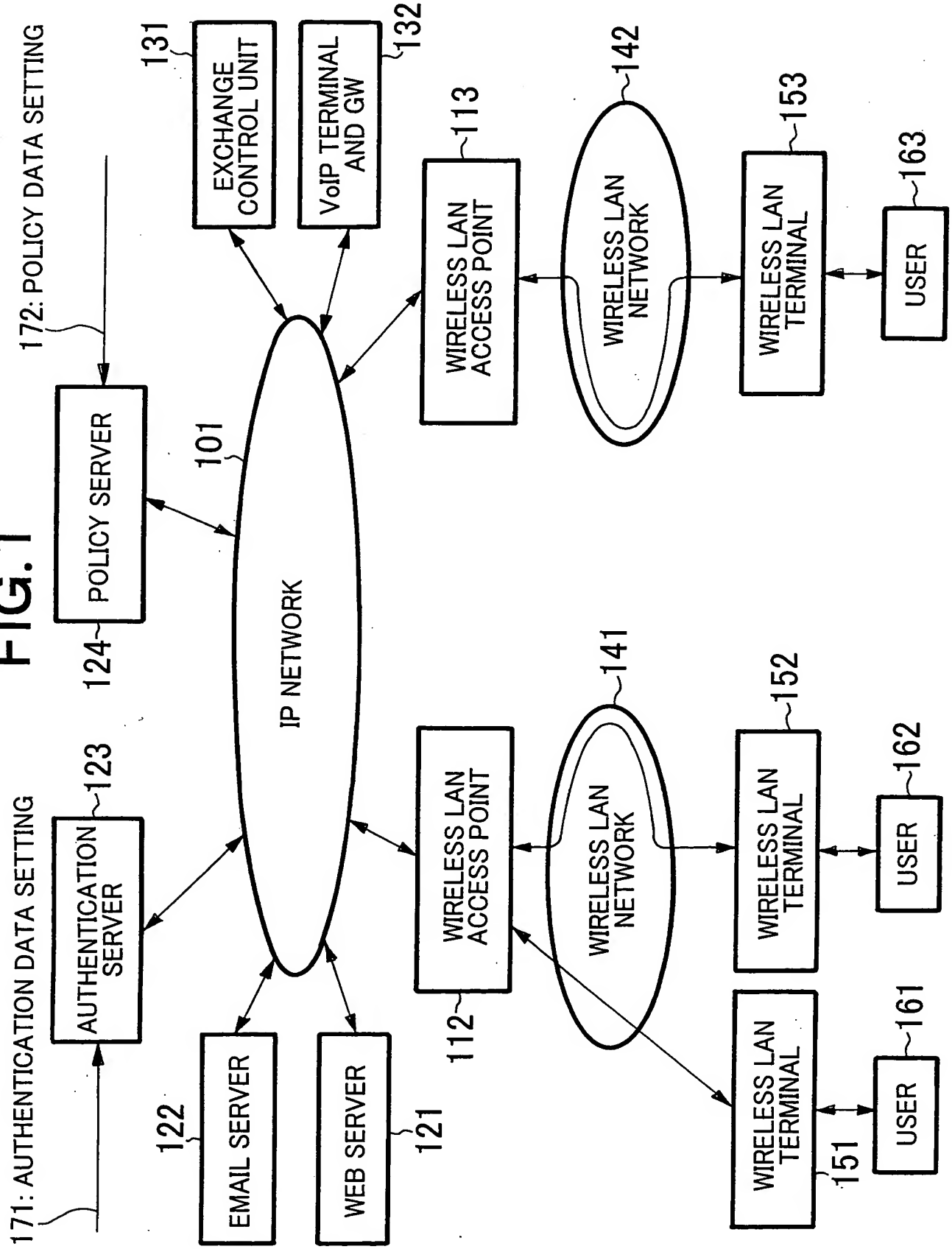

172: POLICY DATA SETTING
131
EXCHANGE CONTROL UNIT
132
VoIP TERMINAL AND GW
113
WIRELESS LAN ACCESS POINT
142
WIRELESS LAN NETWORK
153
WIRELESS LAN TERMINAL
163
USER
POLICY SERVER
124
101
IP NETWORK
171: AUTHENTICATION DATA SETTING
123
AUTHENTICATION SERVER
122
EMAIL SERVER
121
WEB SERVER
112
WIRELESS LAN ACCESS POINT
141
WIRELESS LAN NETWORK
152
WIRELESS LAN TERMINAL
162
USER
151
WIRELESS LAN TERMINAL
161
USER

FIG.2

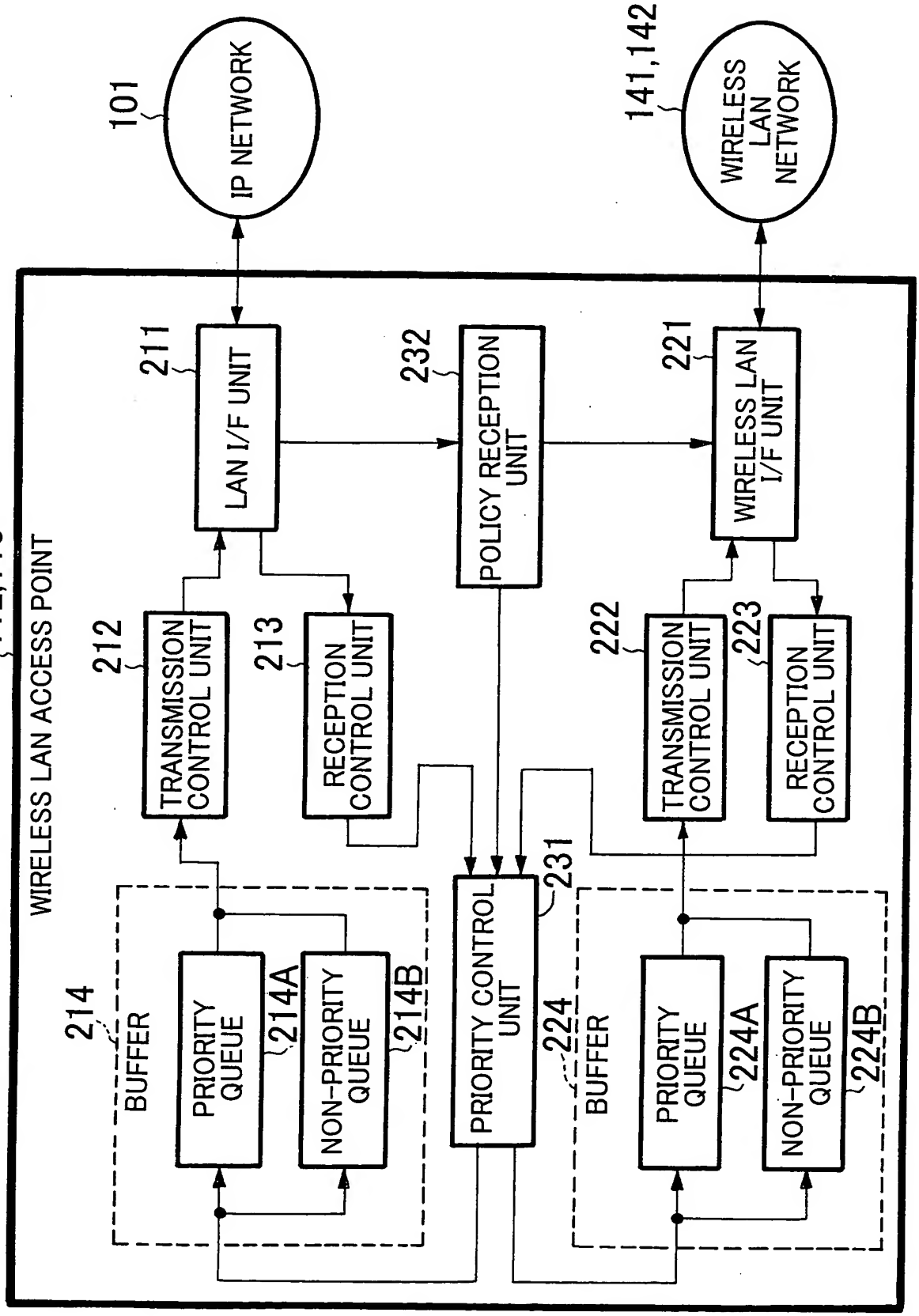

101
IP NETWORK
141,142
WIRELESS LAN NETWORK
112,113
WIRELESS LAN ACCESS POINT
211
LAN I/F UNIT
232
POLICY RECEPTION UNIT
221
WIRELESS LAN I/F UNIT
212
TRANSMISSION CONTROL UNIT
213
RECEPTION CONTROL UNIT
222
TRANSMISSION CONTROL UNIT
223
RECEPTION CONTROL UNIT
231
PRIORITY CONTROL UNIT
214
BUFFER
PRIORITY QUEUE
214A
NON-PRIORITY QUEUE
214B
224
BUFFER
PRIORITY QUEUE
224A
NON-PRIORITY QUEUE
224B

FIG.3

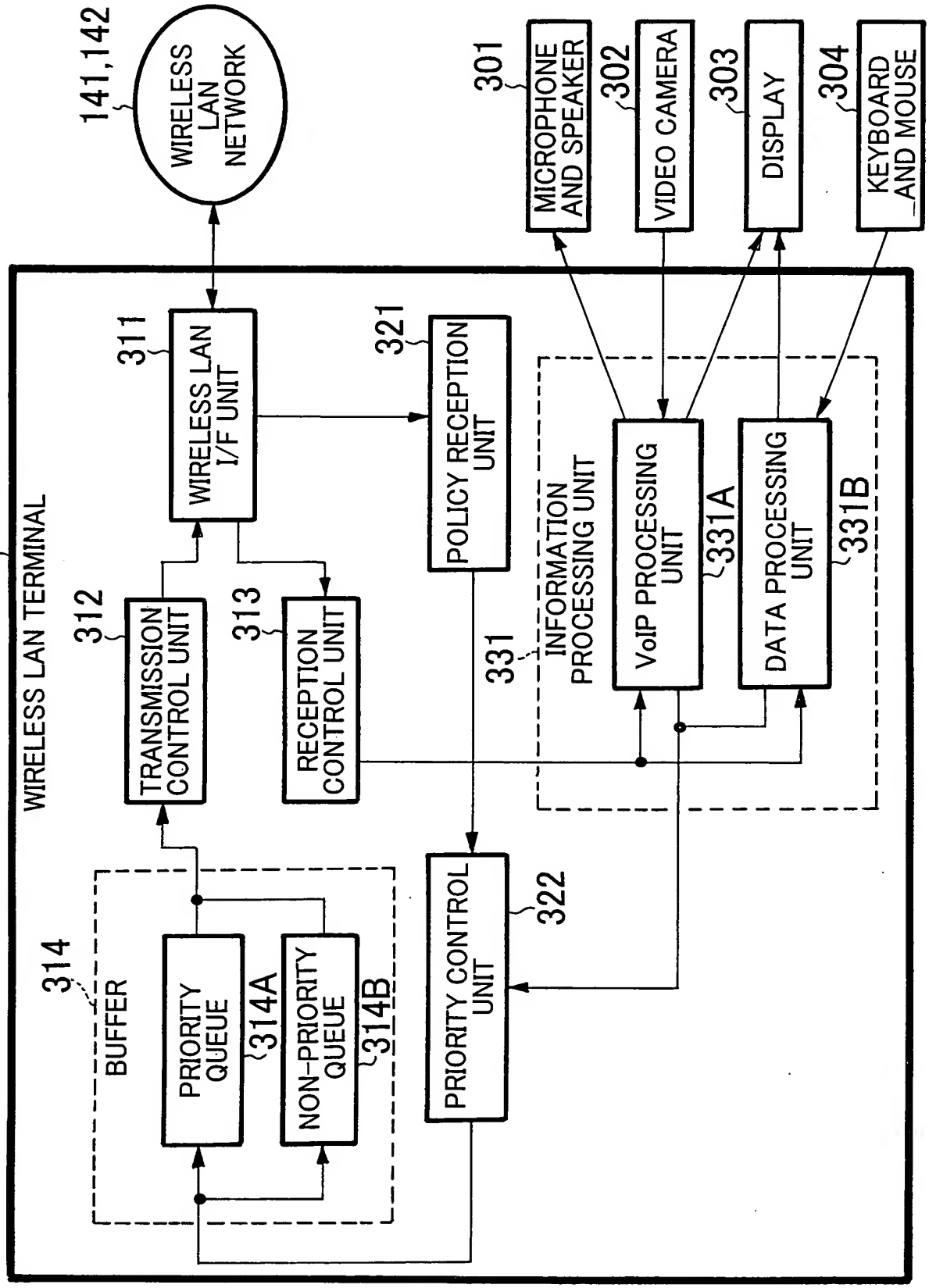

141,142
WIRELESS LAN NETWORK
301
MICROPHONE AND SPEAKER
302
VIDEO CAMERA
303
DISPLAY
304
KEYBOARD AND MOUSE
151,152,153
WIRELESS LAN TERMINAL
311
WIRELESS LAN I/F UNIT
321
POLICY RECEPTION UNIT
INFORMATION PROCESSING UNIT
VoIP PROCESSING UNIT
331A
DATA PROCESSING UNIT
331B
312
TRANSMISSION CONTROL UNIT
313
RECEPTION CONTROL UNIT
331
314
BUFFER
PRIORITY QUEUE
314A
NON-PRIORITY QUEUE
314B
PRIORITY CONTROL UNIT
322

FIG.4A

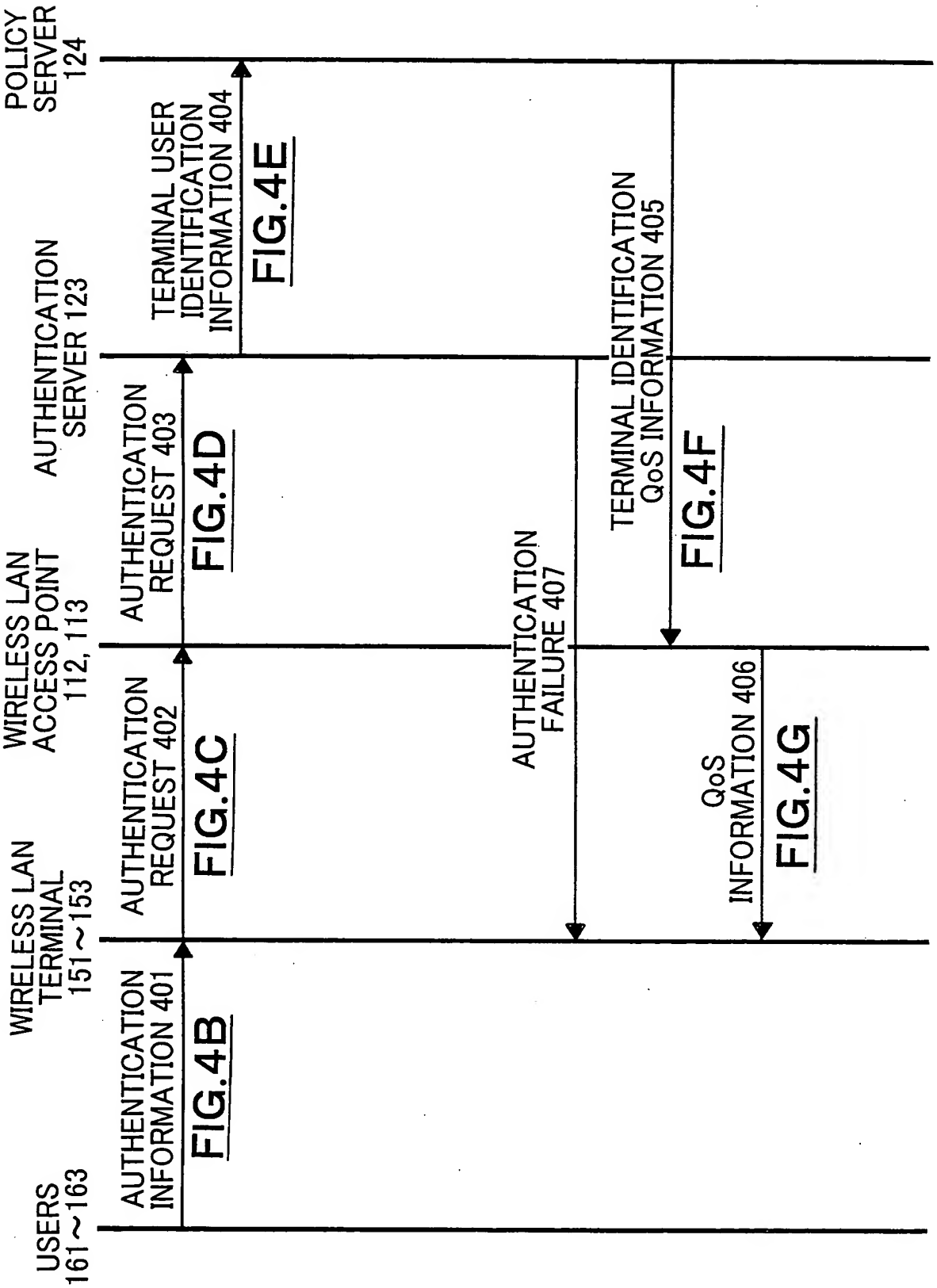

USERS
161~163
WIRELESS LAN
TERMINAL
151~153
WIRELESS LAN
ACCESS POINT
112, 113
AUTHENTICATION
SERVER 123
POLICY
SERVER
124
AUTHENTICATION
INFORMATION 401
FIG.4B
AUTHENTICATION
REQUEST 402
FIG.4C
AUTHENTICATION
REQUEST 403
FIG.4D
TERMINAL USER
IDENTIFICATION
INFORMATION 404
FIG.4E
AUTHENTICATION
FAILURE 407
TERMINAL IDENTIFICATION
QoS INFORMATION 405
FIG.4F
QoS
INFORMATION 406
FIG.4G

FIG.4B

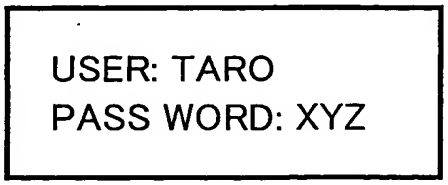


FIG.4C

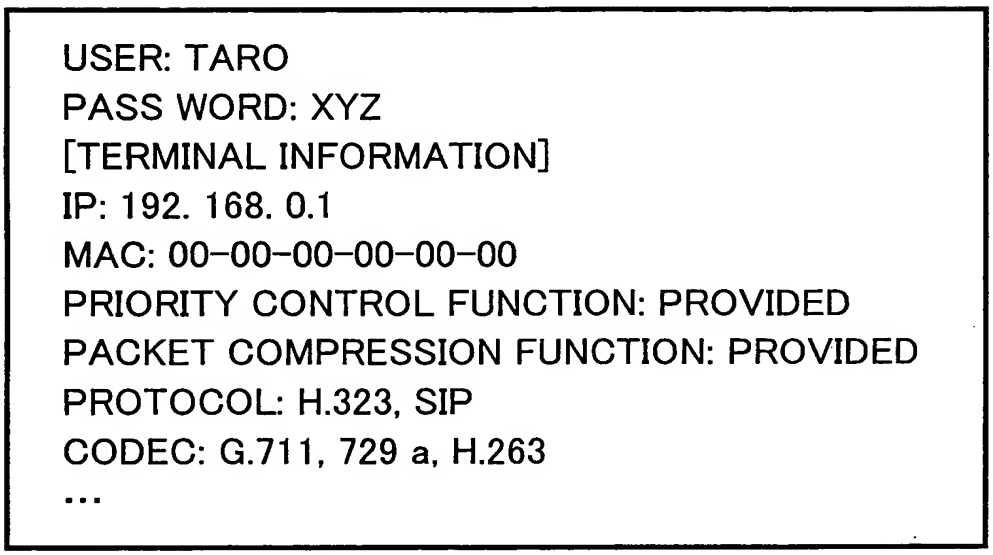


FIG.4D

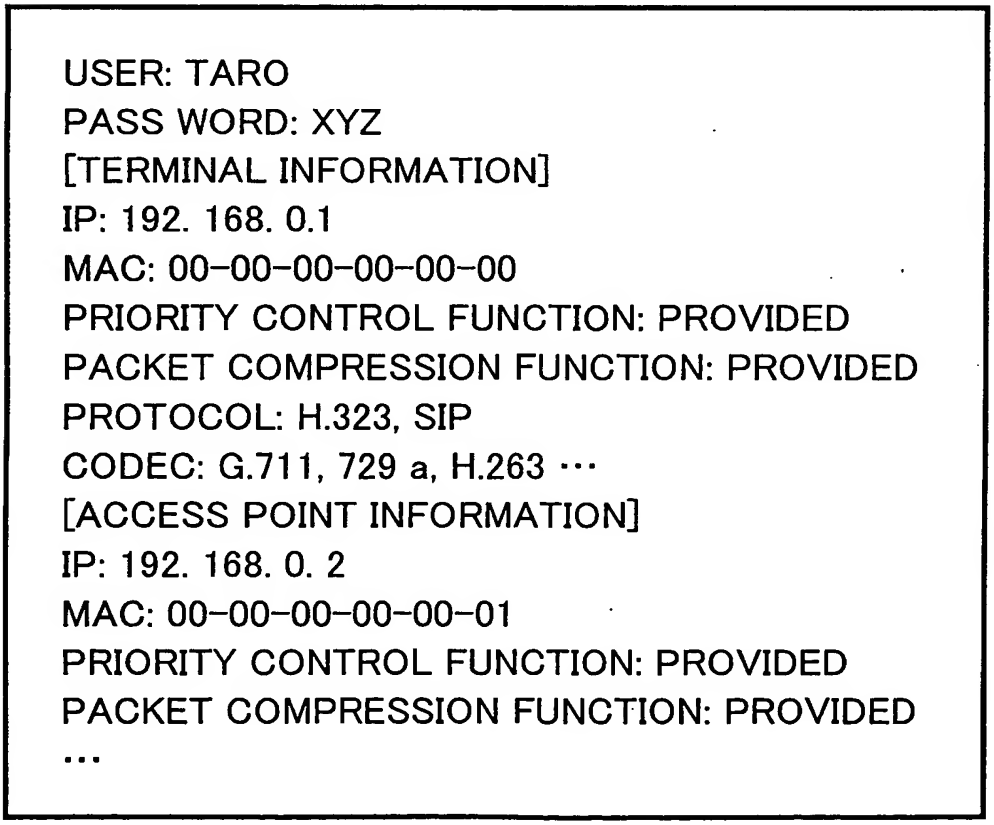


FIG.4E

USER: TARO
PASS WORD: XYZ
[TERMINAL INFORMATION]
IP: 192. 168. 0.1
MAC: 00-00-00-00-00-00
PRIORITY CONTROL FUNCTION: PROVIDED
PACKET COMPRESSION FUNCTION: PROVIDED
PROTOCOL: H.323, SIP
CODEC: G.711, 729 a, H.263 ···
[ACCESS POINT INFORMATION]
IP: 192. 168. 0. 2
MAC: 00-00-00-00-00-01
PRIORITY CONTROL FUNCTION: PROVIDED
PACKET COMPRESSION FUNCTION: PROVIDED
···

FIG.4F

[TERMINAL INFORMATION]
IP: 192. 168. 0.1
MAC: 00-00-00-00-00-00
PRIORITY CONTROL FUNCTION: ALLOWED
PACKET COMPRESSION FUNCTION: ALLOWED
PROTOCOL: H.323, SIP
CODEC: G.711, 729 a, H.263
...

FIG.4G

[TERMINAL INFORMATION]
IP: 192. 168. 0.1
MAC: 00-00-00-00-00-00
PRIORITY CONTROL FUNCTION: ALLOWED
PACKET COMPRESSION FUNCTION: ALLOWED
PROTOCOL: H.323, SIP
CODEC: G.711, 729 a, H.263 ...
[ACCESS POINT INFORMATION]
IP: 192. 168. 0. 2
MAC: 00-00-00-00-00-01
PRIORITY CONTROL FUNCTION: ALLOWED
PACKET COMPRESSION FUNCTION: ALLOWED
...

FIG.5

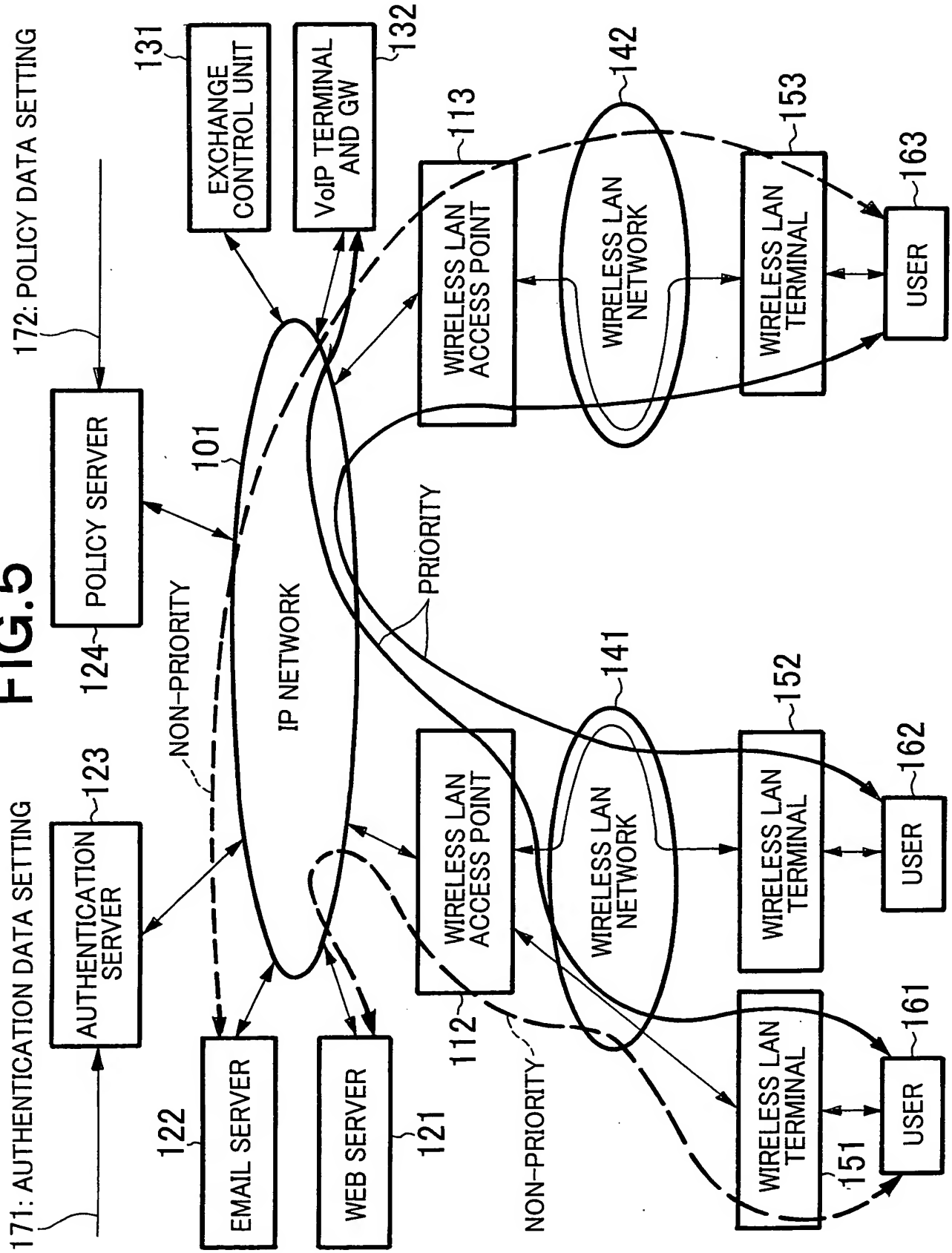

172: POLICY DATA SETTING
171: AUTHENTICATION DATA SETTING
POLICY SERVER
124
AUTHENTICATION SERVER
123
EXCHANGE CONTROL UNIT
131
VoIP TERMINAL AND GW
132
IP NETWORK
101
NON-PRIORITY
PRIORITY
EMAIL SERVER
122
WEB SERVER
121
WIRELESS LAN ACCESS POINT
113
WIRELESS LAN ACCESS POINT
112
WIRELESS LAN NETWORK
142
WIRELESS LAN NETWORK
141
WIRELESS LAN TERMINAL
153
WIRELESS LAN TERMINAL
152
WIRELESS LAN TERMINAL
151
USER
163
USER
162
USER
161
NON-PRIORITY

FIG.6

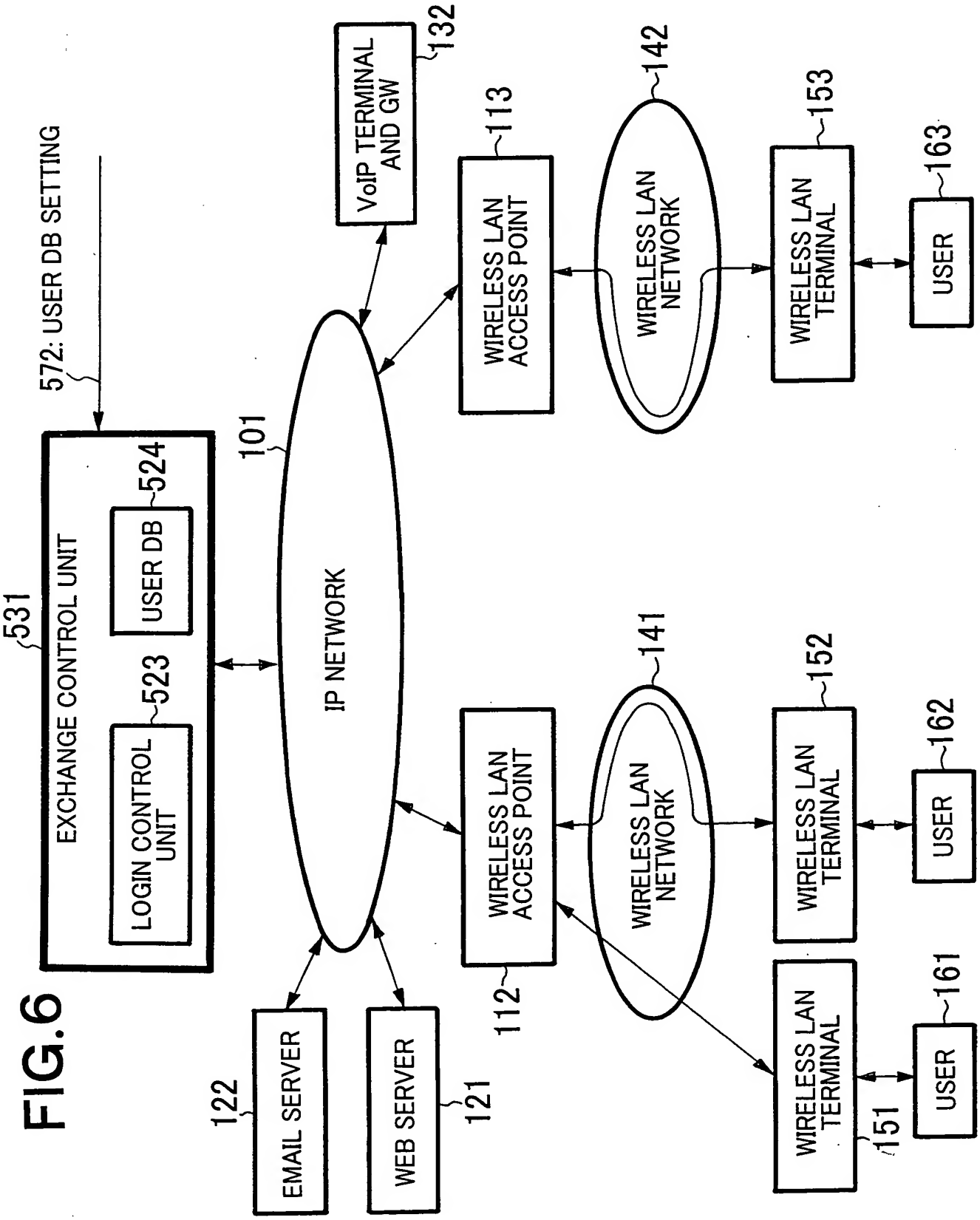

572: USER DB SETTING
531
EXCHANGE CONTROL UNIT
LOGIN CONTROL UNIT
523
USER DB
524
IP NETWORK
101
VoIP TERMINAL AND GW
132
WIRELESS LAN ACCESS POINT
113
WIRELESS LAN NETWORK
142
WIRELESS LAN TERMINAL
153
USER
163
WIRELESS LAN ACCESS POINT
112
WIRELESS LAN NETWORK
141
WIRELESS LAN TERMINAL
152
USER
162
WIRELESS LAN TERMINAL
151
USER
161
EMAIL SERVER
122
WEB SERVER
121

FIG.7A

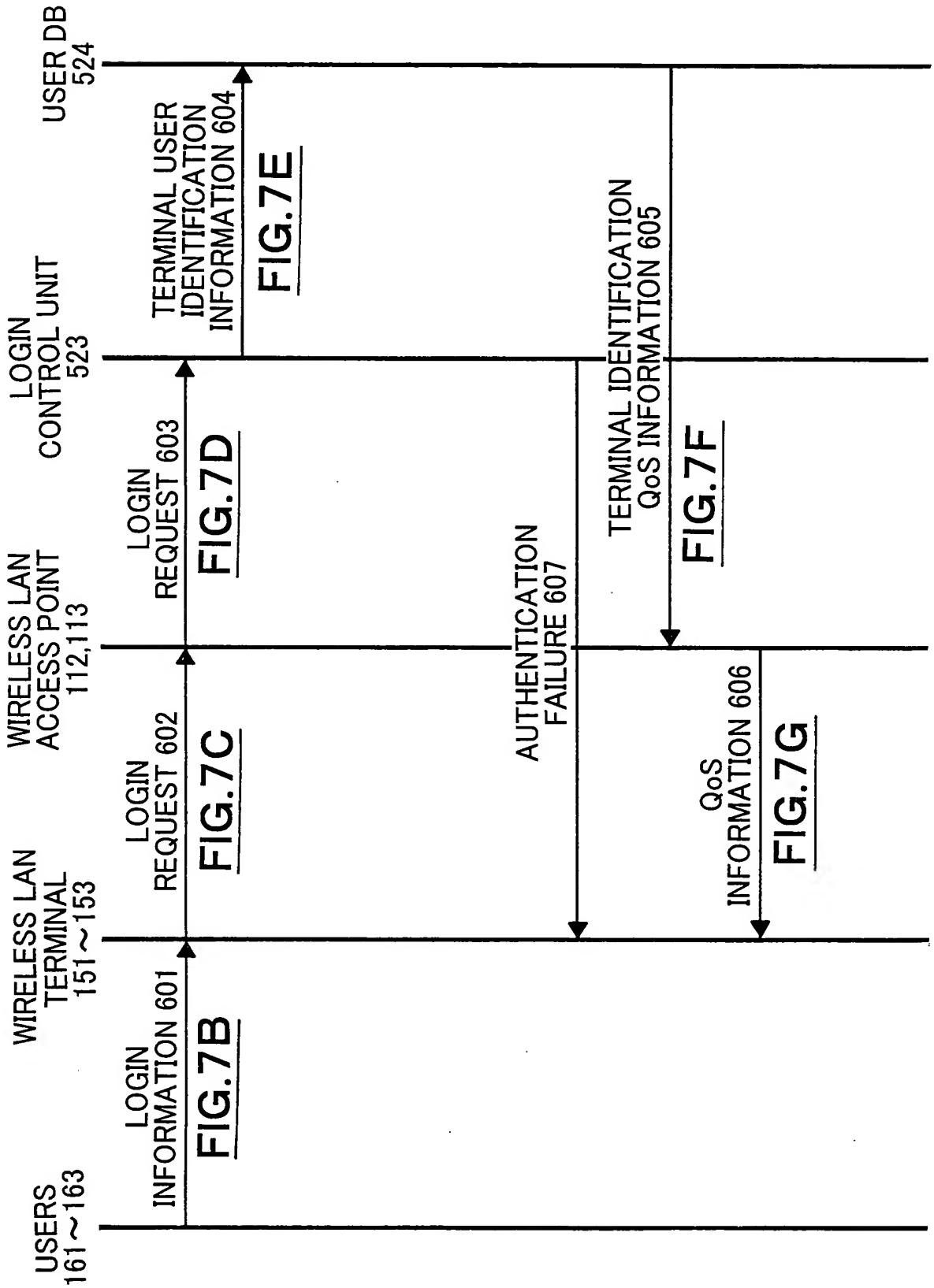

USERS 161~163
WIRELESS LAN TERMINAL 151~153
WIRELESS LAN ACCESS POINT 112,113
LOGIN CONTROL UNIT 523
USER DB 524
LOGIN INFORMATION 601
FIG.7B
LOGIN REQUEST 602
FIG.7C
LOGIN REQUEST 603
FIG.7D
TERMINAL USER IDENTIFICATION INFORMATION 604
FIG.7E
AUTHENTICATION FAILURE 607
TERMINAL IDENTIFICATION QoS INFORMATION 605
FIG.7F
QoS INFORMATION 606
FIG.7G

FIG.7B

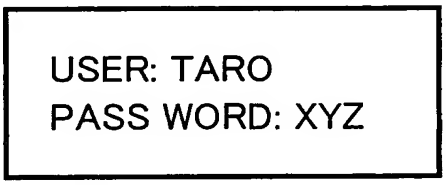


FIG.7C

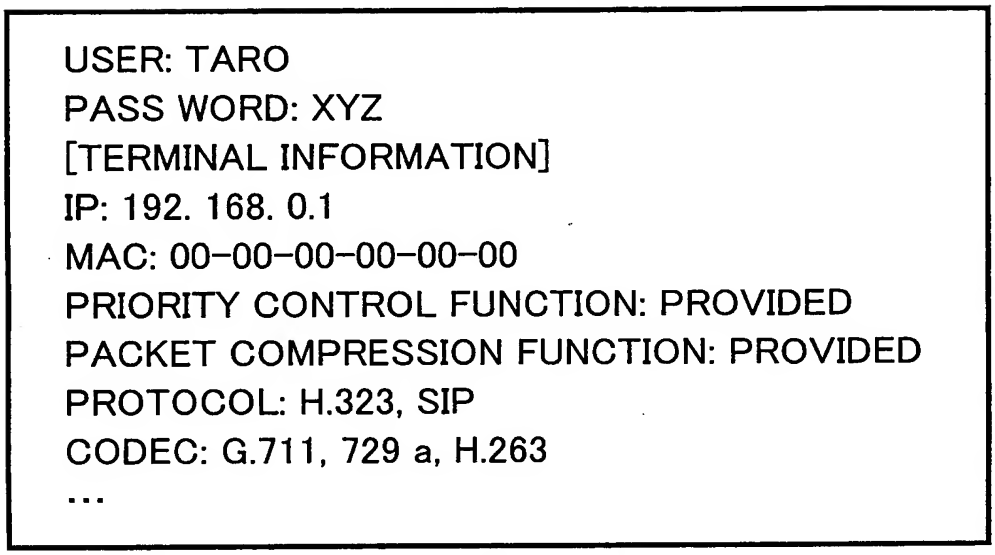


FIG.7D

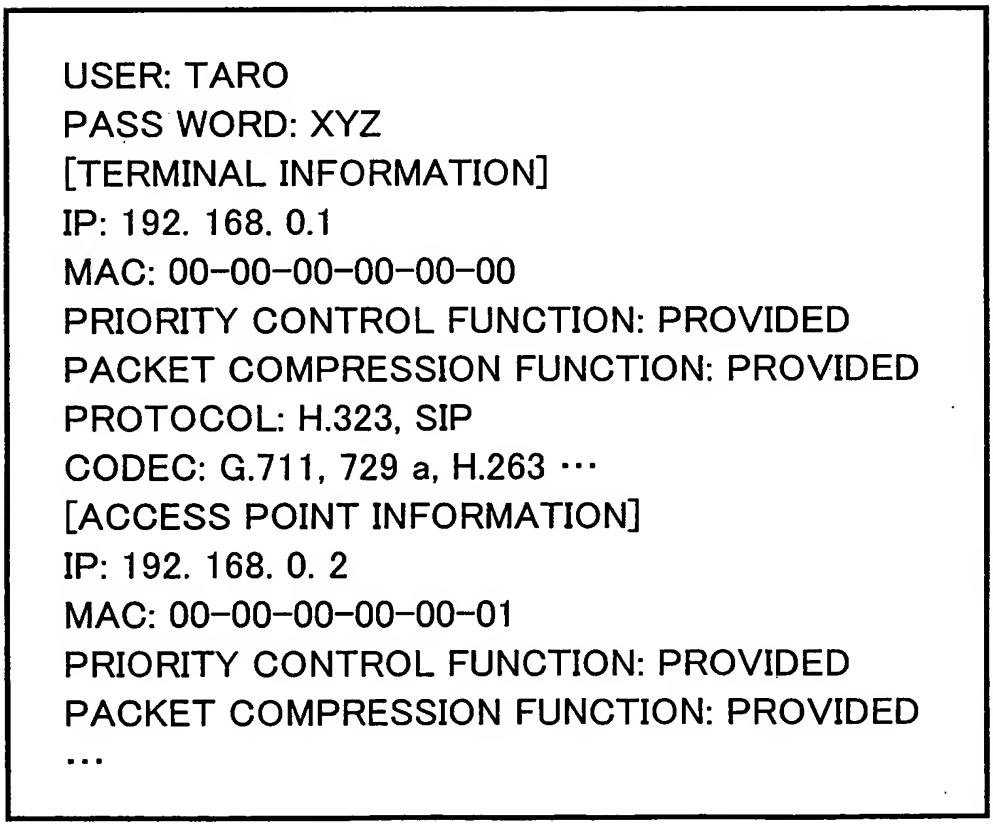


FIG.7E

USER: TARO
PASS WORD: XYZ
[TERMINAL INFORMATION]
IP: 192. 168. 0.1
MAC: 00-00-00-00-00-00
PRIORITY CONTROL FUNCTION: PROVIDED
PACKET COMPRESSION FUNCTION: PROVIDED
PROTOCOL: H.323, SIP
CODEC: G.711, 729 a, H.263 ···
[ACCESS POINT INFORMATION]
IP: 192. 168. 0. 2
MAC: 00-00-00-00-00-01
PRIORITY CONTROL FUNCTION: PROVIDED
PACKET COMPRESSION FUNCTION: PROVIDED
···

FIG.7F

[TERMINAL INFORMATION]
IP: 192. 168. 0.1
MAC: 00-00-00-00-00-00
PRIORITY CONTROL FUNCTION: ALLOWED
PACKET COMPRESSION FUNCTION: ALLOWED
PROTOCOL: H.323, SIP
CODEC: G.711, 729 a, H.263
...

FIG.7G

[TERMINAL INFORMATION]
IP: 192. 168. 0.1
MAC: 00-00-00-00-00-00
PRIORITY CONTROL FUNCTION: ALLOWED
PACKET COMPRESSION FUNCTION: ALLOWED
PROTOCOL: H.323, SIP
CODEC: G.711, 729 a, H.263 ...
[ACCESS POINT INFORMATION]
IP: 192. 168. 0. 2
MAC: 00-00-00-00-00-01
PRIORITY CONTROL FUNCTION: ALLOWED
PACKET COMPRESSION FUNCTION: ALLOWED
...

FIG.8

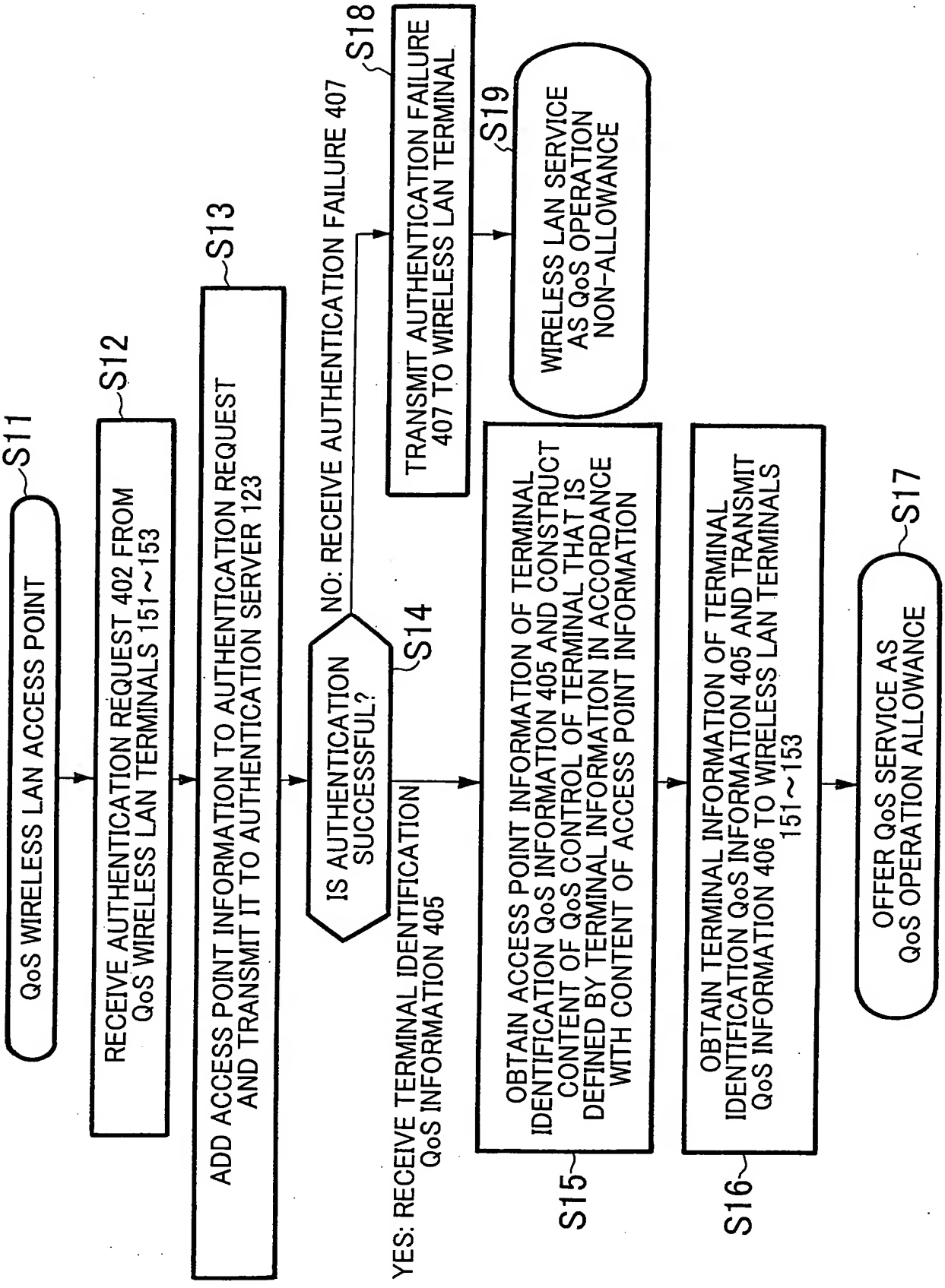

S11
QoS WIRELESS LAN ACCESS POINT
S12
RECEIVE AUTHENTICATION REQUEST 402 FROM QoS WIRELESS LAN TERMINALS 151~153
S13
ADD ACCESS POINT INFORMATION TO AUTHENTICATION REQUEST AND TRANSMIT IT TO AUTHENTICATION SERVER 123
S14
IS AUTHENTICATION SUCCESSFUL?
NO: RECEIVE AUTHENTICATION FAILURE 407
S18
TRANSMIT AUTHENTICATION FAILURE 407 TO WIRELESS LAN TERMINAL
S19
WIRELESS LAN SERVICE AS QoS OPERATION NON-ALLOWANCE
YES: RECEIVE TERMINAL IDENTIFICATION QoS INFORMATION 405
S15
OBTAIN ACCESS POINT INFORMATION OF TERMINAL IDENTIFICATION QoS INFORMATION 405 AND CONSTRUCT CONTENT OF QoS CONTROL OF TERMINAL THAT IS DEFINED BY TERMINAL INFORMATION IN ACCORDANCE WITH CONTENT OF ACCESS POINT INFORMATION
S16
OBTAIN TERMINAL INFORMATION OF TERMINAL IDENTIFICATION QoS INFORMATION 405 AND TRANSMIT QoS INFORMATION 406 TO WIRELESS LAN TERMINALS 151~153
S17
OFFER QoS SERVICE AS QoS OPERATION ALLOWANCE

FIG.9

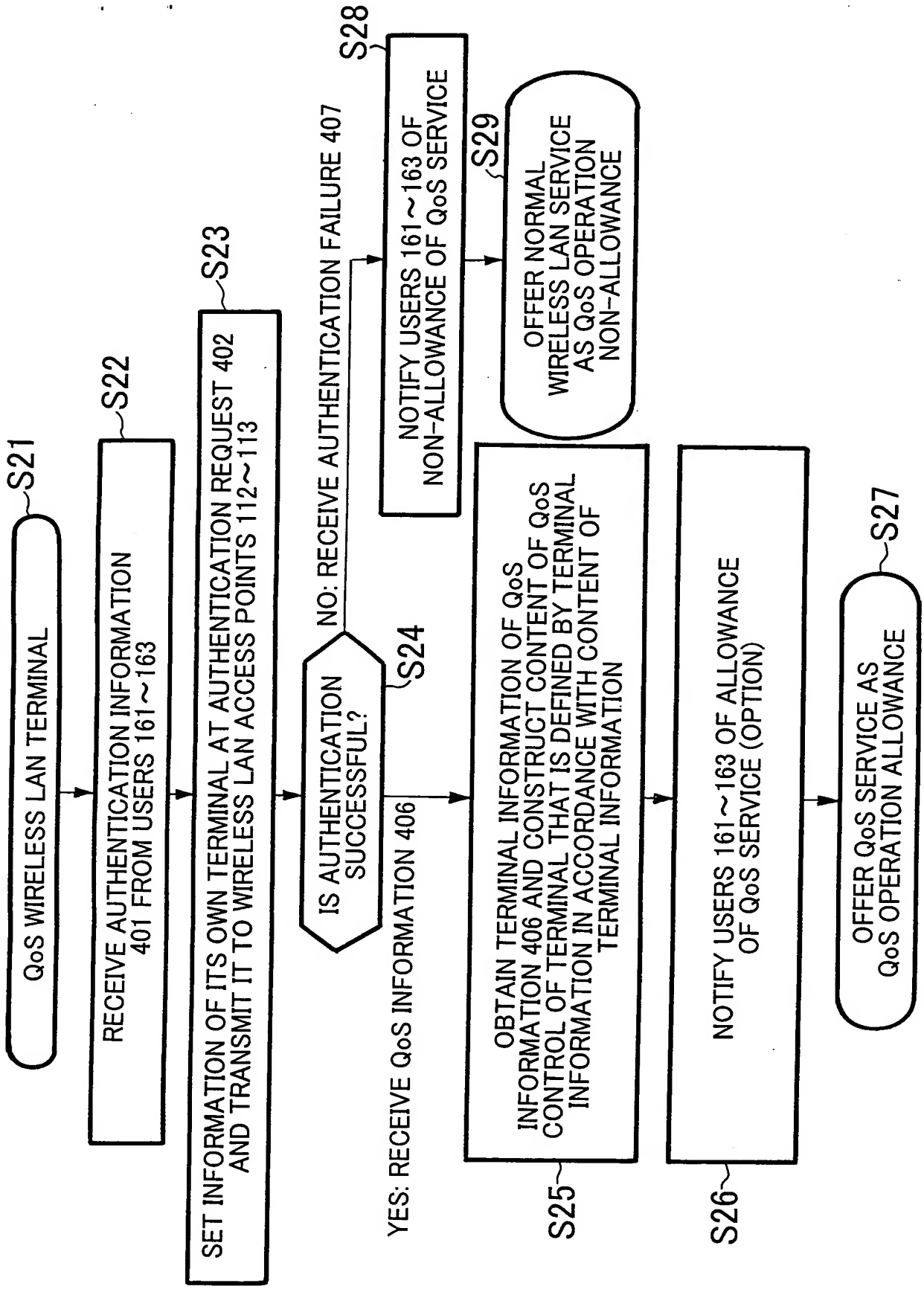

QoS WIRELESS LAN TERMINAL
S21
RECEIVE AUTHENTICATION INFORMATION 401 FROM USERS 161~163
S22
SET INFORMATION OF ITS OWN TERMINAL AT AUTHENTICATION REQUEST 402 AND TRANSMIT IT TO WIRELESS LAN ACCESS POINTS 112~113
S23
IS AUTHENTICATION SUCCESSFUL?
S24
NO: RECEIVE AUTHENTICATION FAILURE 407
NOTIFY USERS 161~163 OF NON-ALLOWANCE OF QoS SERVICE
S28
OFFER NORMAL WIRELESS LAN SERVICE AS QoS OPERATION NON-ALLOWANCE
S29
YES: RECEIVE QoS INFORMATION 406
OBTAIN TERMINAL INFORMATION OF QoS INFORMATION 406 AND CONSTRUCT CONTENT OF QoS CONTROL OF TERMINAL THAT IS DEFINED BY TERMINAL INFORMATION IN ACCORDANCE WITH CONTENT OF TERMINAL INFORMATION
S25
NOTIFY USERS 161~163 OF ALLOWANCE OF QoS SERVICE (OPTION)
S26
OFFER QoS SERVICE AS QoS OPERATION ALLOWANCE
S27

FIG.10

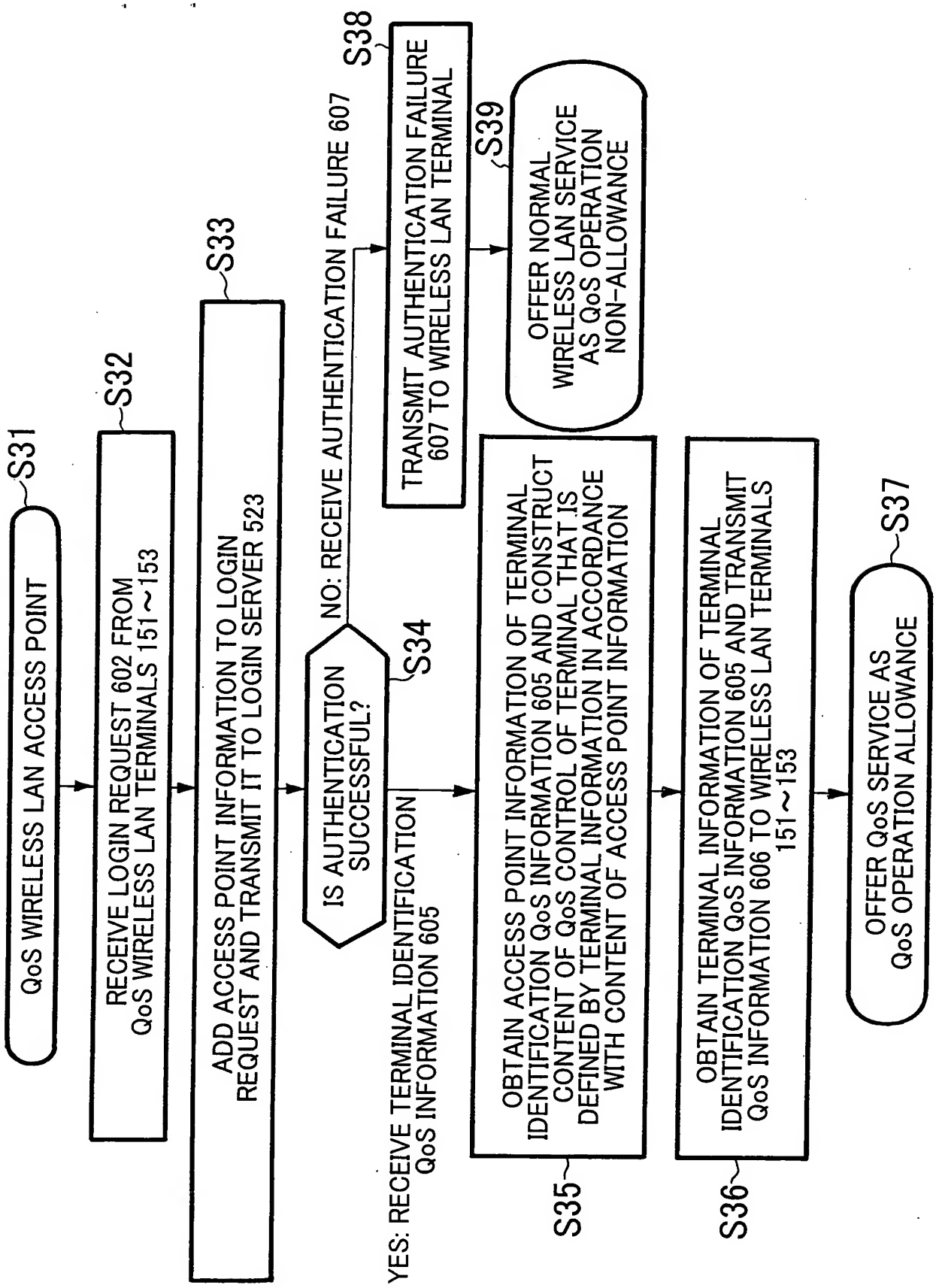

QoS WIRELESS LAN ACCESS POINT
S31
RECEIVE LOGIN REQUEST 602 FROM QoS WIRELESS LAN TERMINALS 151~153
S32
ADD ACCESS POINT INFORMATION TO LOGIN REQUEST AND TRANSMIT IT TO LOGIN SERVER 523
S33
IS AUTHENTICATION SUCCESSFUL?
S34
NO: RECEIVE AUTHENTICATION FAILURE 607
TRANSMIT AUTHENTICATION FAILURE 607 TO WIRELESS LAN TERMINAL
S38
OFFER NORMAL WIRELESS LAN SERVICE AS QoS OPERATION NON-ALLOWANCE
S39
YES: RECEIVE TERMINAL IDENTIFICATION QoS INFORMATION 605
OBTAIN ACCESS POINT INFORMATION OF TERMINAL IDENTIFICATION QoS INFORMATION 605 AND CONSTRUCT CONTENT OF QoS CONTROL OF TERMINAL THAT IS DEFINED BY TERMINAL INFORMATION IN ACCORDANCE WITH CONTENT OF ACCESS POINT INFORMATION
S35
OBTAIN TERMINAL INFORMATION OF TERMINAL IDENTIFICATION QoS INFORMATION 605 AND TRANSMIT QoS INFORMATION 606 TO WIRELESS LAN TERMINALS 151~153
S36
OFFER QoS SERVICE AS QoS OPERATION ALLOWANCE
S37

FIG.11

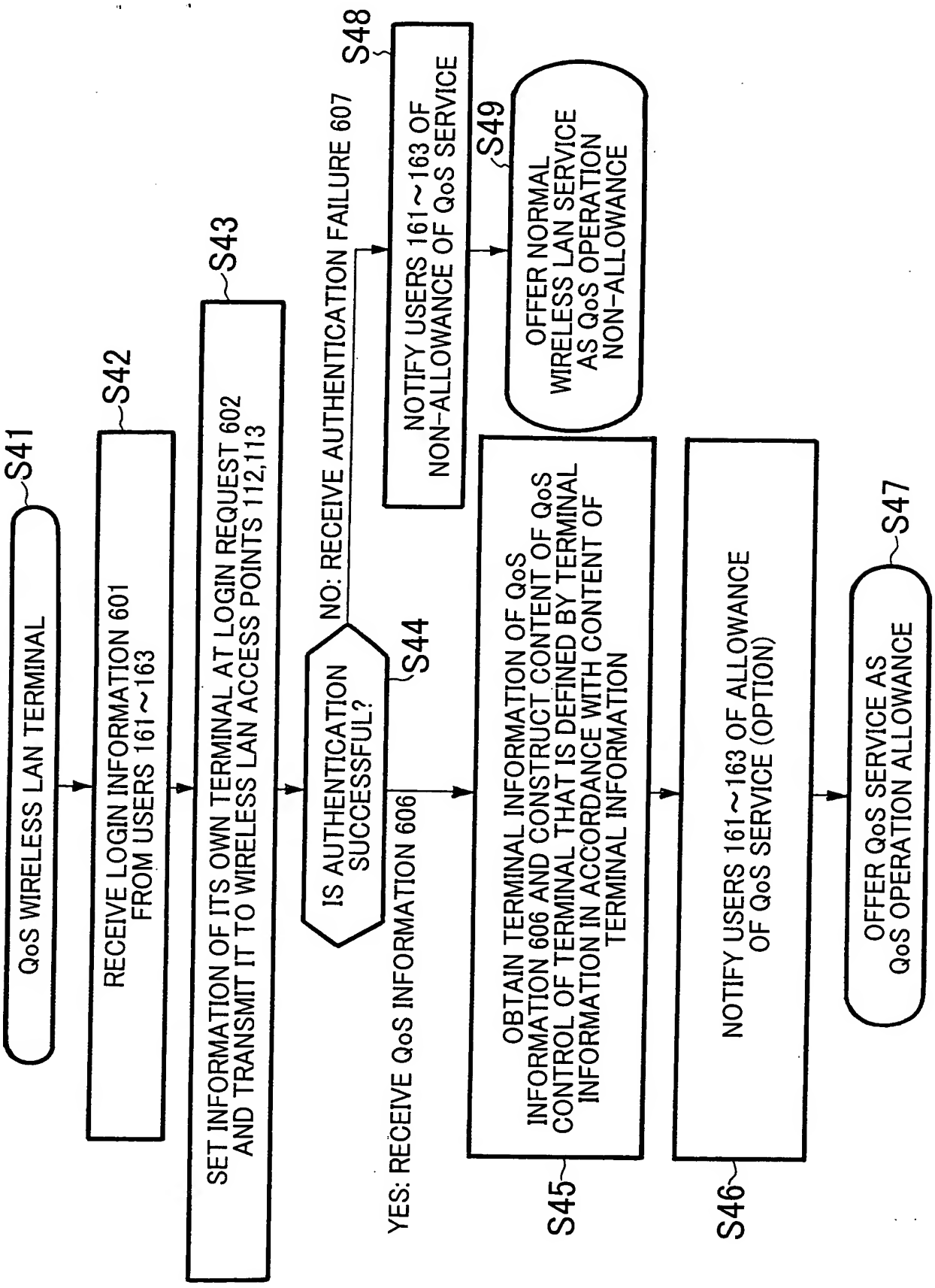
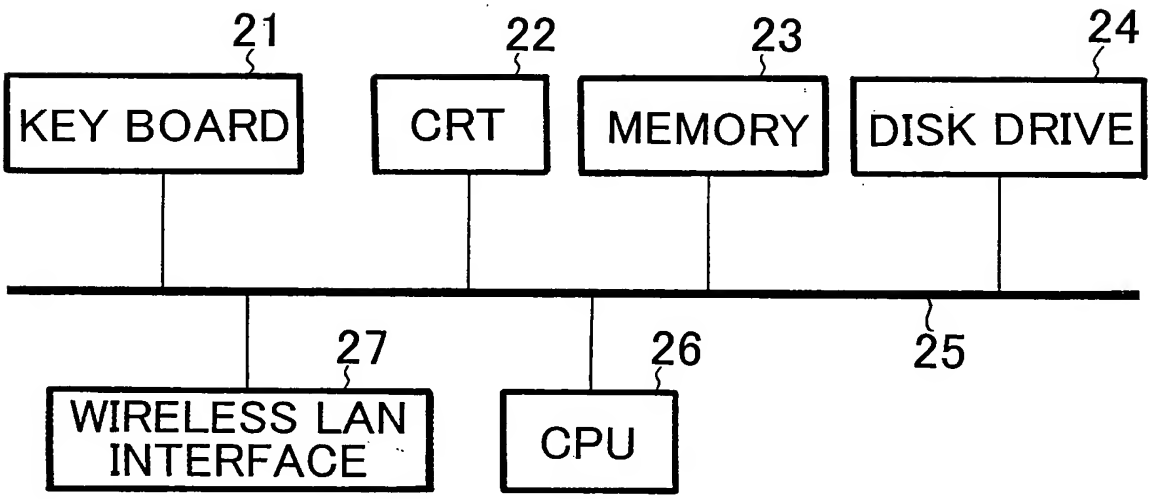

S41
QoS WIRELESS LAN TERMINAL
S42
RECEIVE LOGIN INFORMATION 601 FROM USERS 161~163
S43
SET INFORMATION OF ITS OWN TERMINAL AT LOGIN REQUEST 602 AND TRANSMIT IT TO WIRELESS LAN ACCESS POINTS 112,113
S44
IS AUTHENTICATION SUCCESSFUL?
NO: RECEIVE AUTHENTICATION FAILURE 607
S48
NOTIFY USERS 161~163 OF NON-ALLOWANCE OF QoS SERVICE
S49
OFFER NORMAL WIRELESS LAN SERVICE AS QoS OPERATION NON-ALLOWANCE
YES: RECEIVE QoS INFORMATION 606
S45
OBTAIN TERMINAL INFORMATION OF QoS INFORMATION 606 AND CONSTRUCT CONTENT OF QoS CONTROL OF TERMINAL THAT IS DEFINED BY TERMINAL INFORMATION IN ACCORDANCE WITH CONTENT OF TERMINAL INFORMATION
S46
NOTIFY USERS 161~163 OF ALLOWANCE OF QoS SERVICE (OPTION)
S47
OFFER QoS SERVICE AS QoS OPERATION ALLOWANCE

FIG.12


21
22
23
24
KEY BOARD
CRT
MEMORY
DISK DRIVE
25
27
26
WIRELESS LAN INTERFACE
CPU